Claims Summary Document

1. (Currently Amended) An adsorbent catalyst for reducing amounts of nitrogen oxides, hydrocarbons and carbon monoxide contained in exhaust or combustion gases, wherein the catalyst adsorbs nitrogen oxides when the exhaust or combustion gases contain an excess of oxygen, and liberates and reduces the adsorbed nitrogen oxides when said gases contain oxygen in stoichiometric amounts or less, the adsorbent catalyst comprising[:] a porous support material[, at least the surface area of which contains] containing at least [one of] the following components:

(i) a first catalytic metal[,] comprising Pt;

(ii) a first NO_x adsorbent[, which contains] comprising at least one of the following metals: Ba and Sr[,] ;

(iii) a second NO_x adsorbent[, which contains] comprising at least one of the following metals: La and Y[,] ; and

(iv) a redox NO_x adsorbent[, which contains] comprising at least one of the following metals: Ce, Zr, Ti, Nb, Mn, Pr, Nd, Sm, Eu and Gd ;

wherein components (i)-(iv) are present in an amount effective to adsorb nitrogen oxides when the exhaust or combustion gases contain an excess of oxygen, and liberate and reduce the adsorbed nitrogen oxides when said gases contain oxygen in stoichiometric amounts or less.

2. (Original) An adsorbent catalyst according to claim 1, further comprising a second catalytic metal, which comprises at least one of the following metals: Rh, Pd and Ir.

3. (Original) An adsorbent catalyst according to claim 1, further comprising a third NO_x adsorbent, which contains at least one of the following metals: K, Na, Li, Ca, Rb and Cs.

4. (Currently Amended) An adsorbent catalyst according to claim 1, further comprising a [forth] fourth NO_x adsorbent, which contains at least one of the following metals: Mg and Be.

5. (Original) An adsorbent catalyst according to claim 1, wherein the adsorbents are in the form of oxides, sulfates, nitrates, aluminates or metals.

6. (Original) An adsorbent catalyst according to claim 1, wherein the redox NO_x adsorbent contains at least one of Ce and Zr.

7. (Original) An adsorbent catalyst according to claim 6, wherein the redox NO_x adsorbent is a mixed oxide of ZrCe, MnCeZr or MnCe.

8. (Currently Amended) An adsorbent catalyst according to claim [1] 2, comprising a first surface, on which there is a first coating which contains the support material and at least a portion of said adsorbents, and a second surface, on which there is a second coating which contains the support material and at least a portion of said adsorbents [or a part of them].

9. (Original) An adsorbent catalyst according to claim 8, wherein the first surface is formed by an essentially smooth metal foil, and the second surface is formed by a corrugated metal foil, the foils forming a honeycomb comprising numerous flow channels for gas.

10. (Original) An adsorbent catalyst according to claim 8, wherein the first catalytic metal is Pt and is present in both coatings, and the second catalytic metal is present only in one coating.

11. (Currently Amended) An adsorbent catalyst according to claim 9, wherein the first catalytic metal is divided concentration-wise between the foils such that in one foil the Pt load is 0-90 g/ft^3 and in the other foil the Pt load is 70-400 g/ft^3[, whereby volume refers to the volume of the honeycomb formed from the foils].

12. (Currently Amended) An adsorbent catalyst according to claim 9, wherein the first NO_x adsorbent is divided concentration-wise between the foils such that in the

support material of one foil the concentration is 8-40% by weight, and in the support material of the other foil the concentration is 0-10% by weight[, preferably 3-8% by weight], wherein the weight % concentrations have been calculated as oxides in relation to the weight of the support material.

13. (Original) An adsorbent catalyst according to claim 9, wherein the second NO_x adsorbent is divided concentration-wise between the foils such that in the support material of one foil the concentration is 8-40% by weight, and in the support material of the other foil the concentration is 0-8% by weight, wherein the weight % concentrations have been calculated as oxides in relation to the weight of the support material.

14. (Currently Amended) An adsorbent catalyst according to claim 9, wherein the redox adsorbent is divided concentration-wise between [various] the foils such that in the support material of one foil the concentration is 10-60% by weight, and in the support material of the other foil the concentration is 0-10% by weight, wherein the weight % concentrations have been calculated as oxides in relation to the weight of the support material.

15. (Currently Amended) An adsorbent catalyst according to claim 9, wherein the adsorbents are wholly in the support material of one foil, and the catalytic metals are wholly in the support material of the other foil[, which is preferably the corrugated foil].

16. (Currently Amended) An adsorbent catalyst according to claim 1, wherein the support material contains [mainly] at least one of the following oxides: aluminum oxide, zeolite, [aluminium] aluminum silicate and silica.

Claims 17-18 (withdrawn).

19. (Original) An adsorbent catalyst according to claim 5, wherein the absorbents are in the form of oxides.

20. (Original) An adsorbent catalyst according to claim 8, wherein the first and second coatings each have a composition which are substantially identical.

21. (Currently Amended) An adsorbent catalyst according to claim 8, wherein the first and second coatings each have a composition [which are substantially identical] which differ from each other.

22. (Original) An adsorbent catalyst according to claim 12, wherein the concentration of the first NO_x absorbent in one foil is 10-20% by weight, and the concentration in the other foil is 3-8% by weight.

23. (Original) An adsorbent catalyst according to claim 13, wherein the concentration of the second NO_x adsorbent in one foil is 5-15% by weight, and the concentration in the other foil is 1-6% by weight.

24. (Currently Amended) An adsorbent catalyst according to claim 14, wherein the concentration of the redox adsorbent in one foil is 15-25% by weight, and the concentration in the other foil is 15-25% by weight[, and the concentration in the other foil is 2-5% by weight].

25. (Original) An adsorbent catalyst according to claim 15, wherein the adsorbents are wholly in the smooth foil, and the catalytic metals are wholly in the corrugated foil.

Claims 26-34 (withdrawn).

35. (New) The adsorbent catalyst according to claim 12, wherein the concentration of the first NO_x adsorbent in the support material of the other foil is 3-8% by weight.

36. (New) The adsorbent catalyst according to claim 24, wherein the concentration of the redox adsorbent in the other foil is 15-25% by weight.

37. (New) An adsorbent catalyst for reducing amounts of nitrogen oxides, hydrocarbons and carbon monoxide contained in exhaust or combustion gases, wherein the catalyst adsorbs nitrogen oxides when the exhaust or combustion gases contain an excess of oxygen, and liberates and reduces the adsorbed nitrogen oxides when said gases contain oxygen in stoichiometric amounts or less, the adsorbent catalyst comprising a porous support material containing at least the following components:

(i) a first catalytic metal comprising Pt;

(ii) a second catalytic metal comprising Rh;

(iii) a first NO_x adsorbent comprising at least one of the following metals: Ba and Sr;

(iv) a second NO_x adsorbent comprising at least one of the following metals: La and Y; and

(v) a redox NO_x adsorbent comprising at least one of the following metals: Ce, Zr, Ti, Nb, Mn, Pr, Nd, Sm, Eu and Gd;

wherein components (i)-(v) are present in an amount effective to adsorb nitrogen oxides when the exhaust or combustion gases contain an excess of oxygen, and liberate and reduce the adsorbed nitrogen oxides when said gases contain oxygen in stoichiometric amounts or less.